Photo Management
Standard Operating Procedure

Revision Log

Revision	Description of Change	Author	Effective Date
1	Original draft	T. Paradis	10/01/2005

Purpose

This SOP provides logical standards and guidelines for storing, organizing, naming and retrieving photographs in electronic format in the Inventory and Monitoring Program, National Capital Region Network.

Scope and Applicability

The standards described herein pertain specifically to all digital photographs related to natural resources inventory and monitoring. In this SOP, *digital photograph,* refers to any photo in electronic format regardless of acquisition by scanner or digital camera. Most photos acquired and used by I&M personnel should fit into one of the general categories:

- Library Photos. These photos are final products that have been edited, documented, reviewed and added to the I&M Digital Photo Library that is accessible through the Library catalog located on the I&M server's 'S' drive. Photos in this library are of broad interest, and may be used for multiple purposes by I&M staff. They are public domain.

- Data Photos. Data photos are photos collected as field vouchers or project data and are part of a well defined data collection protocol. Examples may include: 1) site specific photos documenting a shoreline classification and, 2) photos taken as part of a maintenance facility assets inventory. Metadata for these photos is documented and stored in catalogs at project level databases within the project folder structure. Representative, unique and instructive data photos should be renamed and added to the I&M Digital Photo Library.

- Working photos. Photos in this category are works in progress. Working photos are documented, edited and ultimately cataloged with project data, or in the Photo Library or are deleted. Working photos are stored in centrally located employee specific folders located on the I&M server's 'S' drive.

Special Collections Photos. Special collection photographs, such as from a famous photographer, historic event or an existing archived collection are cataloged and archived in specified folders within the main I&M Photo Library.

References

Digital Photo Management Strategy for the Alaska Inventory and Monitoring Program, National Park Service, Alaska Inventory and Monitoring Program, April 23, 2004

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Procedures and General Requirements

Digital photo management flow typically follows these routine steps: Photos are acquired, cataloged and documented, edited, and archived. This SOP provides logical standards and guidelines to facilitate efficient digital image asset management.

Acquisition

Digital Camera Specifications

Digital photographs should be captured at a resolution and quality setting appropriate for the highest detail intended use. As a general rule images destined for printing or publication should be of a higher quality and resolution than images that will be used for email or internet use. If the camera will allow, the resolution should be set at 1760 x 1168 or higher. The quality should be set for "super fine" or "high". Uncompressed TIFF or RAW files retain the greatest amount of image information, but the trade-off for the highest image quality is that these image files are large, and fewer images can be saved to any single memory card.

Publication quality photos should be taken at a minimum of 5 megapixels. Because the destination of a photo is unknown at the time it is taken, all photos should be taken with this resolution, or for lower resolution cameras, the highest resolution possible. Any resizing or file compression should be done during post processing using image editing software.

Though most digital cameras can digitally imprint the date and time directly onto the photo image, this feature usually should not be used. Date and time data are automatically recorded in the EXIF metadata by most digital cameras. If the image is being cataloged and documented it has value – imprinting the image reduces the image quality and hence the image value.

Different brands of digital cameras name photos differently. Some cameras will have several file naming options that may include:

- Sequential numbering which resets each time a memory card is formatted or a new card is put in.
- Sequential numbering which loops from 0001 to 9999.
- Numbering based on date-photo sequence.

Project leaders must carefully review the naming options of the project cameras and ensure that the most useful convention is used by all cameras collecting data photos.

Scanning Specifications

Print Material Types

The resolution is selected based on the size of the original. The smaller the photo, slide, or other material, the higher the resolution should be used to acquire a detailed scan. Higher resolution scans will yield larger and better quality images.

Minimum recommended scan resolutions for different formats:

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- 35mm color slide or negative (scanner should be set up to scan transparent materials - both hardware and software)
    - Choose source size of approx. 1.3 x .85 inches (software should auto-detect this exact dimensions)
    - Choose target size same as original
    - Choose resolution 2400 dpi, 24 bit color (do NOT use 32 or 48 bit
    - color)
    - Save as uncompressed TIFF file
    - yields file size approximately 3120 x 2040 pixels, file size 15-20MB
- 3 1/2" x 5" color photograph
    - Choose source size 3.5 inch x 5.0 inch (software should auto-detect the exact size)
    - Choose target size the same as the original
    - For color photo, choose resolution 600-700 dpi, 24 bit color (do NOT use 32 or 48 bit color)
    - For black & white photo, choose resolution 600-700 dpi, 8 bit grayscale (do NOT use 16 bit grayscale)
    - Save as uncompressed TIFF file
    - yields file size approximately 3000 x 2100 pixels, file size 15-20MB
- 4" x 6" color OR black & white photograph
    - Choose source size 4.0 inch x 6.0 inch (software should auto-detect the exact size)
    - Choose target size the same as the original
    - For color photo, choose resolution 600 dpi, 24 bit color (do NOT use 32 or 48 bit color)
    - For black & white photo, choose resolution 600 dpi, 8 bit grayscale (do NOT use 16bit grayscale)
    - Save as uncompressed TIFF file
    - yields file size approximately 3600 x 2400 pixels, file size 15-20MB

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- 5" x 7" color OR black & white photograph
    - Choose source size 5.0 inch x 7.0 inch (software should auto-detect the exact size) Photograph Management Specifications
    - Choose target size the same as the original
    - For color photo, choose resolution 600 (450 if controls allow it) dpi, 24 bit color (do NOT use 32 or 48 bit color)
    - For black & white photo, choose resolution 600 (450 if controls allow it) dpi, 8 bit grayscale (do NOT use 16bit grayscale)
    - Save as uncompressed TIFF file
    - scan to yield file size approximately: yields file size approximately 4200 x 3000 pixels, file size 20-25MB for color
- 8" x 10" color OR black & white photograph
    - Choose source size 8.0 inch x 10.0 inch (software should autodetect the exact size)
    - Choose target size the same as the original
    - For color photo, choose resolution 300 dpi, 24 bit color (do NOT use 32 or 48 bit color)
    - For black & white photo, choose resolution 300 dpi, 8 bit grayscale (do NOT use 16bit grayscale)
    - Save as uncompressed TIFF file
    - scan to yield file size approximately: yields file size approximately 4200 x 3000 pixels, file size 20-25MB for color
- 8 1/2" x 11" typewritten/printed paper
    - Scan at resolution 300 dpi or 400 dpi if the text has very small print
    - Save as uncompressed TIFF file

Cataloging and Documentation

After importing files from a digital camera or scanner, image workflow will usually follow these general steps:

A. Establish catalog destination

B. Copy original files

C. Archive original files

D. Attach metadata to work photos (e.g., project name, description, keywords, IPTC data, custom fields)

E. Rename

F. Edit and proof

G. Convert format and resize for use

Cataloging Image Types

Original and Edited Photos

Once the original files have been imported, the unaltered files should be copied and archived. The names of folders containing these photos should clearly indicate that the folder contains unedited originals. Original photo folders may include multiple photos of the same subject, blurry pictures, or other less desirable photos.

Working Photos

Photos that are awaiting editing, proofing or processing are considered working photos. These image files should be cataloged and stored in centrally located employee specific folders. Finished images are moved to the Photo Library or the appropriate project data folder.

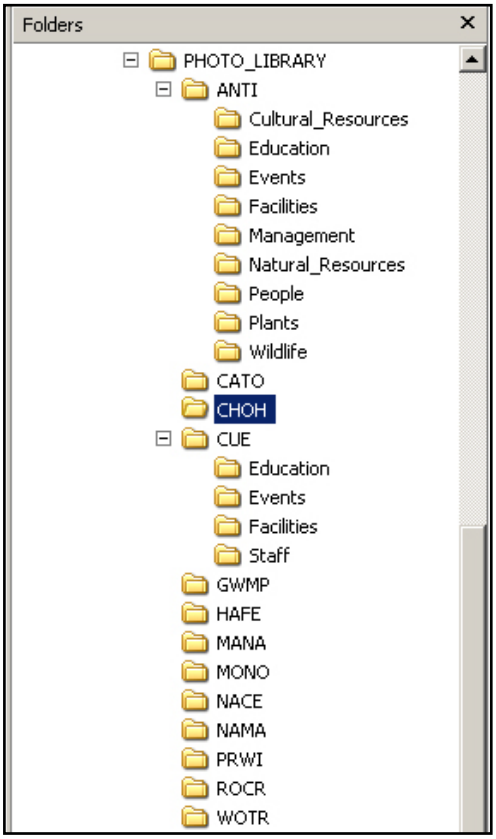

Figure 3. Sample directory structure for digital photos.

Data Photos

Data photos are photos collected as part of a documented data collection protocol. The project data processing protocol should contain a detailed section on processing these photos. Photos taken as part of a project's data collection protocol are project data, so they must be organized, cataloged and stored with all other project data. Data photos of interest to a greater audience should be copied, renamed and cataloged in the Digital Image Library. For more information on the storage of digital data, see the NCRN SOP for Digital Data Maintenance.

Miscellaneous Project Photos:

Incidental or opportunistic photos taken by project personnel are not data photos and can be managed as miscellaneous photos. Miscellaneous photos taken as part of a project should be stored in the project miscellaneous photos directory. This allows the photos to stay with the project, but does not confuse them with data photos. These photos may be further processed to become Library photos. Photos of interest to a greater audience should be copied, renamed and cataloged in the I&M Digital Image Library.

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Library Photos

Library photos are public domain photos available for a variety of purposes to all I&M personnel. These photos have been processed, documented and reviewed for inclusion in the I&M Photo Library. Generally these images are high quality, high resolution, but lower quality images may be included if the subject matter has broad appeal and is special, rare or unique.

4.2b Documentatoin

All images should be documented and cataloged after importing or scanning. Documentation, in the form of metadata, provides the minimum information a user will need to appropriately use the photo. Cataloging provides a collective means for organizing, searching, and retrieving photos.

Software

Various software packages are currently under review at the time of this writing. Procedures specific to the selected program will be documented in the future.

Metadata

Specific data keywords and fields will be defined conforming to the requirements of the selected software program, and will vary with the specifics of individual projects and images. Following are typical metadata fields used for I&M photos :

- Description
- Photographer, Contributors, or Archive Institution (all that apply)
- Collection Name, if applicable (historic and archives)
- Project
- Publisher
- Park
- Location
- GPS Data
- Format/Size/Source
- Subject
- Genus
- Species
- Other taxonomic information
- Keywords
- Credits
- Distribution Restrictions, such as copyright or sensitivity

Digital cameras attach some metadata to the image as EXIF data usually including:

- File name

- Aperture
- Date Digitized
- Date Taken
- Exposure Bias
- Exposure Time
- F-Number
- Flash (yes, no)
- Focal Length
- ISO Speed
- Light source
- Shutter Speed

Image Naming Standards

Since image asset management software possess powerful viewing and search capabilities utilizing user defined fields and metadata, detailed descriptive file names are not required to efficiently identify, catalog, or use digital photos. In order to easily differentiate Photo Library images from data photos, all I&M photos will be renamed in accordance with one of two standardized conventions.

Image management software can batch rename any number photos as part of an automated cataloging sequence saving the user time and guarding aqainst typographical errors . In some cases, renaming should be done initially as a batch process for information that is common to all images, and then in a second step to add information specific to the individual photo.

In all cases, photo names should not use spaces or special characters. As a general rule file names should be less than 20 characters.

Photo Library Naming Standards

The image file name consists of three or four parts:

1. The park code.

2. A brief description of the image.

3. The year the photo was taken, written as YYYY.

4. A numeric extender for multi-part photos or sequences of the same subject.

Each of the first three parts is separated with a hyphen and the forth, when required, with an underscore.

Examples:

ANTI-SpanishMoss-2001.jpg

CHOH-Sunset-2002.tif

MANA-Canon-1999_1.tif

MANA-Canon-1999_2.tif

Data Photo Naming Standards

Since specific project metada can be attached to the image file itself, data photo names merely provide a simple chronological connection to rest of the project data.

The image file name should consist of three or four parts:

1. The date the photo was taken, written as YYMMDD.

2. Project Code, Park Code or description

3. Chronological photo number.

4. A numeric extender for multi-part photos or sequences of the same subject.

Examples:

990829_Lichens_262.jpg

050704_Deer_097.jpg

020112_Bats _020-1.jpg

020112_Bats _020-2.jpg

4.5. Image Viewing and Editing

Viewing

Software for image viewing is under review at the time of this writing. The selected viewing software will be part of an integrated Digital Image Asset Management program.

Editing

Editing can be accomplished with any digital photo editor (e.g. Photoshop CS, Photoshop Elements)

Basic photo editing:

- Poor quality photos should be deleted, except where the subject is highly unique.
- Medium quality photos should be assessed against existing photos of the same subject in the I&M Photo Library. If the photos duplicate the subject with no enhancement of quality or perspective, the photo should be deleted.
- Photos should be rotated to portrait or landscape.

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- Photos of people should have ‘red eye’ removed.
- Photos should be cropped to remove edge areas that grossly distract from the subject.